

AMENDMENTS TO THE CLAIMS

The following is a listing of claims that replaces all prior versions, and listings, of claims in the application:

1. (Currently Amended) A method of attaching a moiety to a surface of a layered silicate, said method comprising the steps of:

covalently attaching said moiety to an arginine tag; and

contacting said arginine tag with said surface of said layered silicate, to produce said moiety attached to said surface of said layered silicate, wherein the quantity of the attached moiety that detaches from said surface when contacted with a solution comprising a concentration of arginine chosen from one or more concentrations in the range from 25 mM to 100 mM is higher than the quantity of the attached moiety that detaches from said surface when contacted with a solution comprising the same chosen concentration of cations chosen from one or more of sodium cations and magnesium cations.

2. (Original) The method of claim 1, wherein said arginine tag comprises at least two arginine residues.

3. (Original) The method of claim 1, wherein said arginine tag comprises from about two to about 100 arginine residues.

4. (Currently amended) The method of claim 1, wherein said arginine tag consists of ~~only~~ arginine residues.

5. (Original) The method of claim 1, wherein said layered silicate is mica.

6. (Previously Amended) The method of claim 1, wherein said method further comprises contacting said surface of said layered silicate with a solution ~~containing~~ comprising a sodium salt in a concentration sufficient to remove molecules bound to said surface of said layered silicate by non-specific ion exchange.

7. (Previously Amended) The method of claim 6, wherein said sodium salt is present in a concentration of at least 1 mM.
8. (Currently amended) The method of claim 1, wherein said moiety ~~is a~~ comprises a biological molecule.
9. (Currently amended) The method of claim 8, wherein said biological molecule ~~is a~~ comprises a protein.
10. (Original) The method of claim 9, wherein said protein is chemically conjugated to said arginine tag.
11. (Original) The method of claim 9, wherein said protein is fused to the amino or carboxyl terminus of said arginine tag.
12. (Original) The method of claim 9, wherein said protein is recombinantly expressed as a fusion protein with said arginine tag.
13. (Previously Amended) A method of attaching a protein to a surface of a layered silicate, said method comprising the steps of:
covalently attaching said protein to an arginine tag, and
contacting said arginine tag with said surface of said layered silicate,
wherein said protein is selected from the group consisting of a DNA binding protein, a molecular motor, an actin filament, a microtubule, a myosin filament, an actin binding protein, and a myosin filament binding protein.
- Claims 14-55 (previously cancelled).
56. (New) The method of Claim 1, wherein the quantity of the attached moiety that detaches from said surface when contacted with a solution comprising 100 mM arginine is higher than the quantity of the attached moiety that detaches from said surface when

contacted with a solution comprising a concentration of magnesium cations from 25 mM to 250 mM.

57. (New) The method of Claim 1, wherein the quantity of the attached moiety that detaches from said surface when contacted with a solution comprising 100 mM arginine is higher than the quantity of the attached moiety that detaches from said surface when contacted with a solution comprising a concentration of magnesium cations chosen from one or more of 25 mM, 50 mM, 125 mM, and 250 mM.

58. (New) The method of Claim 1, wherein the quantity of the attached moiety that detaches from said surface when contacted with a solution comprising 100 mM arginine is higher than the quantity of the attached moiety that detaches from said surface when contacted with a solution comprising a concentration of sodium cations from 50 mM to 250 mM.

59. (New) The method of Claim 1, wherein the quantity of the attached moiety that detaches from said surface when contacted with a solution comprising 100 mM arginine is higher than the quantity of the attached moiety that detaches from said surface when contacted with a solution comprising a concentration of sodium cations chosen from one or more of 50 mM, 125 mM, and 250 mM.

60. (New) The method of Claim 1, wherein said moiety attached to said surface of said layered silicate detaches from said surface when contacted with a solution comprising a concentration of potassium cations from 25 mM to 250 mM.

61. (New) The method of Claim 1, wherein the quantity of the attached moiety that detaches from said surface when contacted with a solution comprising a concentration of arginine from 25 mM to 100 mM is higher than the quantity of the attached moiety that detaches from said surface when contacted with a solution comprising the same chosen concentration of potassium cations.

62. (New) The method of Claim 1, wherein the quantity of the attached moiety that detaches from said surface when contacted with a solution comprising 25 mM arginine is higher than the quantity of the attached moiety that detaches from said surface when contacted with a solution comprising 25 mM potassium cations.

63. (New) The method of Claim 1, wherein said moiety attached to said surface of said layered silicate detaches from said surface when contacted with a solution comprising a concentration of arginine from 10 mM to 100 mM.

64. (New) The method of Claim 1, wherein said moiety attached to said surface of said layered silicate detaches from said surface when contacted with a solution comprising a concentration of arginine chosen from one or more of 10, 25, 50, and 100 mM.

65. (New) The method of Claim 1, wherein said layered silicate is chosen from one or more of vermiculite, montmorillonite, hentonite, hectorite, fluorohectorite, hydroxyl hectorite, muscovite boron fluorophlogopite, hydroxyl boron phlogopite, and mica.

66. (New) The method of Claim 1, wherein said arginine tag comprises a homopolymer consisting of 2 to 100 contiguous arginine residues.

67. (New) The method of Claim 1, wherein said arginine tag comprises a homopolymer consisting of 6 contiguous arginine residues.

68. (New) The method of Claim 1, wherein said arginine tag comprises a heteropolymer comprising from 2 to 100 contiguous arginine residues.

69. (New) The method of Claim 1, wherein said biological molecule comprises an antibody.

70. (New) The method of Claim 13, wherein said contacting of said arginine tag with said surface of said layered silicate produces said moiety attached to said surface of said

layered silicate, and wherein the quantity of the attached moiety that detaches from said surface when contacted with a solution comprising a concentration of arginine chosen from one or more concentrations in the range from 25 mM to 100 mM is higher than the quantity of the attached moiety that detaches from said surface when contacted with a solution comprising the same chosen concentration of cations chosen from one or more of sodium cations and magnesium cations.

71. (New) The method of Claim 13, wherein said arginine tag comprises at least two arginine residues.

72. (New) The method of Claim 13, wherein said arginine tag comprises from two to 100 arginine residues.

73. (New) The method of Claim 13, wherein said arginine tag consists of arginine residues.

74. (New) The method of Claim 13, wherein said layered silicate comprises mica.

75. (New) The method of Claim 13, wherein said method further comprises contacting said surface of said layered silicate with a solution comprising a sodium salt in a concentration sufficient to remove molecules bound to said surface of said layered silicate by non-specific ion exchange.

76. (New) The method of Claim 75, wherein said sodium salt is present in a concentration of at least 1 mM.

77. (New) The method of Claim 13, wherein said moiety comprises a biological molecule.

78. (New) The method of Claim 13, wherein said protein is chemically conjugated to said arginine tag.

79. (New) The method of Claim 13, wherein said protein is fused to the amino or carboxyl terminus of said arginine tag.

80. (New) The method of Claim 13, wherein said protein is recombinantly expressed as a fusion protein with said arginine tag.

81. (New) The method of Claim 13, wherein said layered silicate is chosen from one or more of vermiculite, montmorillonite, hentonite, hectorite, fluorohectorite, hydroxyl hectorite, muscovite boron fluorophlogopite, hydroxyl boron phlogopite, and mica.

82. (New) The method of Claim 13, wherein said arginine tag comprises a homopolymer consisting of 6 contiguous arginine residues.

83. (New) The method of Claim 13, wherein the quantity of the attached moiety that detaches from said surface when contacted with a solution comprising 100 mM arginine is higher than the quantity of the attached moiety that detaches from said surface when contacted with a solution comprising a concentration of magnesium cations from 25 mM to 250 mM.

84. (New) The method of Claim 13, wherein the quantity of the attached moiety that detaches from said surface when contacted with a solution comprising 100 mM arginine is higher than the quantity of the attached moiety that detaches from said surface when contacted with a solution comprising a concentration of magnesium cations chosen from one or more of 25 mM, 50 mM, 125 mM, and 250 mM.

85. (New) The method of Claim 13, wherein the quantity of the attached moiety that detaches from said surface when contacted with a solution comprising 100 mM arginine is higher than the quantity of the attached moiety that detaches from said surface when contacted with a solution comprising a concentration of sodium cations from 50 mM to 250 mM.

86. (New) The method of Claim 13, wherein the quantity of the attached moiety that detaches from said surface when contacted with a solution comprising 100 mM arginine is higher than the quantity of the attached moiety that detaches from said surface when contacted with a solution comprising a concentration of sodium cations chosen from one or more of 50 mM, 125 mM, and 250 mM.

87. (New) The method of Claim 13, wherein said moiety attached to said surface of said layered silicate detaches from said surface when contacted with a solution comprising a concentration of potassium cations from 25 mM to 250 mM.

88. (New) The method of Claim 13, wherein the quantity of the attached moiety that detaches from said surface when contacted with a solution comprising a concentration of arginine from 25 mM to 100 mM is higher than the quantity of the attached moiety that detaches from said surface when contacted with a solution comprising the same chosen concentration of potassium cations.

89. (New) The method of Claim 13, wherein the quantity of the attached moiety that detaches from said surface when contacted with a solution comprising 25 mM arginine is higher than the quantity of the attached moiety that detaches from said surface when contacted with a solution comprising 25 mM potassium cations.

90. (New) The method of Claim 13, wherein said moiety attached to said surface of said layered silicate detaches from said surface when contacted with a solution comprising a concentration of arginine from 10 mM to 100 mM.

91. (New) The method of Claim 13, wherein said moiety attached to said surface of said layered silicate detaches from said surface when contacted with a solution comprising a concentration of arginine chosen from one or more of 10, 25, 50, and 100 mM.